

What is claimed is:

1. A thermal fuse having a function of a current fuse in which a low-melting fusible alloy piece having an alloy composition containing 40 to 70% Bi is connected between a pair of flat lead conductors, a flux is applied to said low-melting fusible alloy piece, and said flux-applied low-melting fusible alloy piece is sandwiched between a resin base film and a resin cover film to provide insulation, wherein

10 a resistance of said low-melting fusible alloy piece is set so as to enable said low-melting fusible alloy piece to be fused off also by Joule heat due to an allowable maximum current of a secondary battery.

2. A thermal fuse having a function of a current fuse according to claim 1, wherein a melting point of said low-melting fusible alloy piece is 85 to 95°C, and the allowable maximum current is a current of 2 to 10 A and 1,000 seconds.

3. A thermal fuse having a function of a current fuse according to claim 1, wherein front end portions of said pair of flat lead conductors are secured to a rear face of said resin base film, a part of each of said front end portions is exposed from a surface of said base film, said low-melting fusible alloy piece is connected between said exposed parts, the flux is applied to said low-melting fusi-

ble alloy piece, and an area above said base film is sealed by said resin cover film.

4. A thermal fuse having a function of a current fuse according to claim 2, wherein front end portions of said pair  
5 of flat lead conductors are secured to a rear face of said resin base film, a part of each of said front end portions is exposed from a surface of said base film, said low-melting fusible alloy piece is connected between said exposed parts, the flux is applied to said low-melting fusible  
10 ble alloy piece, and an area above said base film is sealed by said resin cover film.

5. A thermal fuse having a function of a current fuse according to claim 1, wherein said pair of flat lead conductors, and said flux-applied low-melting fusible alloy piece  
15 which is connected between upper faces of tip end portions of said lead conductors are sealed with being vertically sandwiched between said resin cover film and said resin base film.

6. A thermal fuse having a function of a current fuse according to claim 2, wherein said pair of flat lead conductors, and said flux-applied low-melting fusible alloy piece  
20 which is connected between upper faces of tip end portions of said lead conductors are sealed with being vertically sandwiched between said resin cover film and said resin  
25 base film.

7. A thermal fuse having a function of a current fuse according to claim 1, wherein a balance of the alloy composition containing 40 to 70% Bi is In and inevitable impurities.

5 8. A thermal fuse having a function of a current fuse according to claim 2, wherein a balance of the alloy composition containing 40 to 70% Bi is In and inevitable impurities.

10 9. A thermal fuse having a function of a current fuse according to claim 3, wherein a balance of the alloy composition containing 40 to 70% Bi is In and inevitable impurities.

15 10. A thermal fuse having a function of a current fuse according to claim 4, wherein a balance of the alloy composition containing 40 to 70% Bi is In and inevitable impurities.

20 11. A thermal fuse having a function of a current fuse according to claim 5, wherein a balance of the alloy composition containing 40 to 70% Bi is In and inevitable impurities.

12. A thermal fuse having a function of a current fuse according to claim 6, wherein a balance of the alloy composition containing 40 to 70% Bi is In and inevitable impurities.

25 13. A thermal fuse having a function of a current fuse ac-

cording to claim 1, wherein a balance of the alloy composition containing 40 to 70% Bi is In, inevitable impurities, and 0.05 to 5% of at least one of Ag, Cu, Au, Sb, Ni, Pt, Pd, Ge, and P.

5 14. A thermal fuse having a function of a current fuse according to claim 2, wherein a balance of the alloy composition containing 40 to 70% Bi is In, inevitable impurities, and 0.05 to 5% of at least one of Ag, Cu, Au, Sb, Ni, Pt, Pd, Ge, and P.

10 15. A thermal fuse having a function of a current fuse according to claim 3, wherein a balance of the alloy composition containing 40 to 70% Bi is In, inevitable impurities, and 0.05 to 5% of at least one of Ag, Cu, Au, Sb, Ni, Pt, Pd, Ge, and P.

15 16. A thermal fuse having a function of a current fuse according to claim 4, wherein a balance of the alloy composition containing 40 to 70% Bi is In, inevitable impurities, and 0.05 to 5% of at least one of Ag, Cu, Au, Sb, Ni, Pt, Pd, Ge, and P.

20 17. A thermal fuse having a function of a current fuse according to claim 5, wherein a balance of the alloy composition containing 40 to 70% Bi is In, inevitable impurities, and 0.05 to 5% of at least one of Ag, Cu, Au, Sb, Ni, Pt, Pd, Ge, and P.

25 18. A thermal fuse having a function of a current fuse ac-

cording to claim 6, wherein a balance of the alloy composition containing 40 to 70% Bi is In, inevitable impurities, and 0.05 to 5% of at least one of Ag, Cu, Au, Sb, Ni, Pt, Pd, Ge, and P.

5 19. A thermal fuse having a function of a current fuse according to claim 1, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

20. A thermal fuse having a function of a current fuse according to claim 2, wherein a resistance of said low-  
10 melting fusible alloy piece is 4.5 to 50 mΩ.

21. A thermal fuse having a function of a current fuse according to claim 3, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

22. A thermal fuse having a function of a current fuse according to claim 4, wherein a resistance of said low-  
15 melting fusible alloy piece is 4.5 to 50 mΩ.

23. A thermal fuse having a function of a current fuse according to claim 5, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

20 24. A thermal fuse having a function of a current fuse according to claim 6, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

25 25. A thermal fuse having a function of a current fuse according to claim 7, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

26. A thermal fuse having a function of a current fuse according to claim 8, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

27. A thermal fuse having a function of a current fuse according to claim 9, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

28. A thermal fuse having a function of a current fuse according to claim 10, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

29. A thermal fuse having a function of a current fuse according to claim 11, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

30. A thermal fuse having a function of a current fuse according to claim 12, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

31. A thermal fuse having a function of a current fuse according to claim 13, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

32. A thermal fuse having a function of a current fuse according to claim 14, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

33. A thermal fuse having a function of a current fuse according to claim 15, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

34. A thermal fuse having a function of a current fuse ac-

cording to claim 16, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

35. A thermal fuse having a function of a current fuse according to claim 17, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

36. A thermal fuse having a function of a current fuse according to claim 18, wherein a resistance of said low-melting fusible alloy piece is 4.5 to 50 mΩ.

37. A thermal fuse having a function of a current fuse according to claim 1, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

38. A thermal fuse having a function of a current fuse according to claim 2, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

39. A thermal fuse having a function of a current fuse according to claim 3, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

40. A thermal fuse having a function of a current fuse according to claim 4, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

41. A thermal fuse having a function of a current fuse ac-

cording to claim 5, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

42. A thermal fuse having a function of a current fuse according to claim 6, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

43. A thermal fuse having a function of a current fuse according to claim 7, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

44. A thermal fuse having a function of a current fuse according to claim 8, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

45. A thermal fuse having a function of a current fuse according to claim 9, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

46. A thermal fuse having a function of a current fuse according to claim 10, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

47. A thermal fuse having a function of a current fuse according to claim 11, wherein a ratio  $d/t$  of an outer diame-



ter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

48. A thermal fuse having a function of a current fuse according to claim 12, wherein a ratio d/t of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

49. A thermal fuse having a function of a current fuse according to claim 13, wherein a ratio d/t of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

50. A thermal fuse having a function of a current fuse according to claim 14, wherein a ratio d/t of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

51. A thermal fuse having a function of a current fuse according to claim 15, wherein a ratio d/t of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

52. A thermal fuse having a function of a current fuse according to claim 16, wherein a ratio d/t of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

53. A thermal fuse having a function of a current fuse according to claim 17, wherein a ratio d/t of an outer diameter d of said low-melting fusible alloy piece to a thick-

ness t of each of said flat lead conductors is 2 to 5.

54. A thermal fuse having a function of a current fuse according to claim 18, wherein a ratio  $d/t$  of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

55. A thermal fuse having a function of a current fuse according to claim 19, wherein a ratio  $d/t$  of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

10 56. A thermal fuse having a function of a current fuse according to claim 20, wherein a ratio  $d/t$  of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

15 57. A thermal fuse having a function of a current fuse according to claim 21, wherein a ratio  $d/t$  of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

20 58. A thermal fuse having a function of a current fuse according to claim 22, wherein a ratio  $d/t$  of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

25 59. A thermal fuse having a function of a current fuse according to claim 23, wherein a ratio  $d/t$  of an outer diameter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

60. A thermal fuse having a function of a current fuse according to claim 24, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

5 61. A thermal fuse having a function of a current fuse according to claim 25, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

62. A thermal fuse having a function of a current fuse according to claim 26, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

63. A thermal fuse having a function of a current fuse according to claim 27, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

64. A thermal fuse having a function of a current fuse according to claim 28, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

65. A thermal fuse having a function of a current fuse according to claim 29, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

25 66. A thermal fuse having a function of a current fuse ac-

cording to claim 30, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

5 67. A thermal fuse having a function of a current fuse according to claim 31, wherein a ratio  $d/t$  of an outer diameter  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

68. A thermal fuse having a function of a current fuse according to claim 32, wherein a ratio  $d/t$  of an outer diameter  
10  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

69. A thermal fuse having a function of a current fuse according to claim 33, wherein a ratio  $d/t$  of an outer diameter  
15  $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

70. A thermal fuse having a function of a current fuse according to claim 34, wherein a ratio  $d/t$  of an outer diameter  
 $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

20 71. A thermal fuse having a function of a current fuse according to claim 35, wherein a ratio  $d/t$  of an outer diameter  
 $d$  of said low-melting fusible alloy piece to a thickness  $t$  of each of said flat lead conductors is 2 to 5.

72. A thermal fuse having a function of a current fuse according to claim 36, wherein a ratio  $d/t$  of an outer diame-  
25

ter d of said low-melting fusible alloy piece to a thickness t of each of said flat lead conductors is 2 to 5.

73. A thermal fuse having a function of a current fuse according to claim 1, wherein a thickness from a lower face  
5 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

74. A thermal fuse having a function of a current fuse according to claim 2, wherein a thickness from a lower face  
10 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

75. A thermal fuse having a function of a current fuse according to claim 3, wherein a thickness from a lower face  
of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

15 76. A thermal fuse having a function of a current fuse according to claim 4, wherein a thickness from a lower face  
of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

20 77. A thermal fuse having a function of a current fuse according to claim 5, wherein a thickness from a lower face  
of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

25 78. A thermal fuse having a function of a current fuse according to claim 6, wherein a thickness from a lower face  
of said resin base film to an upper face of said resin

cover film is 2.0 mm or smaller.

79. A thermal fuse having a function of a current fuse according to claim 7, wherein a thickness from a lower face of said resin base film to an upper face of said resin  
5 cover film is 2.0 mm or smaller.

80. A thermal fuse having a function of a current fuse according to claim 8, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

10 81. A thermal fuse having a function of a current fuse according to claim 9, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

82. A thermal fuse having a function of a current fuse according to claim 10, wherein a thickness from a lower face  
15 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

83. A thermal fuse having a function of a current fuse according to claim 11, wherein a thickness from a lower face  
20 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

84. A thermal fuse having a function of a current fuse according to claim 12, wherein a thickness from a lower face of said resin base film to an upper face of said resin  
25 cover film is 2.0 mm or smaller.

85. A thermal fuse having a function of a current fuse according to claim 13, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

5 86. A thermal fuse having a function of a current fuse according to claim 14, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

10 87. A thermal fuse having a function of a current fuse according to claim 15, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

15 88. A thermal fuse having a function of a current fuse according to claim 16, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

20 89. A thermal fuse having a function of a current fuse according to claim 17, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

90. A thermal fuse having a function of a current fuse according to claim 18, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

25 91. A thermal fuse having a function of a current fuse ac-

cording to claim 19, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

92. A thermal fuse having a function of a current fuse according to claim 20, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

93. A thermal fuse having a function of a current fuse according to claim 21, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

94. A thermal fuse having a function of a current fuse according to claim 22, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

95. A thermal fuse having a function of a current fuse according to claim 23, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

96. A thermal fuse having a function of a current fuse according to claim 24, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

97. A thermal fuse having a function of a current fuse according to claim 25, wherein a thickness from a lower face



of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

98. A thermal fuse having a function of a current fuse according to claim 26, wherein a thickness from a lower face  
5 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

99. A thermal fuse having a function of a current fuse according to claim 27, wherein a thickness from a lower face  
10 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

100. A thermal fuse having a function of a current fuse according to claim 28, wherein a thickness from a lower face  
of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

15 101. A thermal fuse having a function of a current fuse according to claim 29, wherein a thickness from a lower face  
of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

102. A thermal fuse having a function of a current fuse  
20 cording to claim 30, wherein a thickness from a lower face  
of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

103. A thermal fuse having a function of a current fuse  
25 according to claim 31, wherein a thickness from a lower face  
of said resin base film to an upper face of said resin

cover film is 2.0 mm or smaller.

104. A thermal fuse having a function of a current fuse according to claim 32, wherein a thickness from a lower face of said resin base film to an upper face of said resin  
5 cover film is 2.0 mm or smaller.

105. A thermal fuse having a function of a current fuse according to claim 33, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

10 106. A thermal fuse having a function of a current fuse according to claim 34, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

15 107. A thermal fuse having a function of a current fuse according to claim 35, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

20 108. A thermal fuse having a function of a current fuse according to claim 36, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

25 109. A thermal fuse having a function of a current fuse according to claim 37, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

110. A thermal fuse having a function of a current fuse according to claim 38, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

5 111. A thermal fuse having a function of a current fuse according to claim 39, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

112. A thermal fuse having a function of a current fuse according to claim 40, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

113. A thermal fuse having a function of a current fuse according to claim 41, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

114. A thermal fuse having a function of a current fuse according to claim 42, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

115. A thermal fuse having a function of a current fuse according to claim 43, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

25 116. A thermal fuse having a function of a current fuse ac-

cording to claim 44, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

117. A thermal fuse having a function of a current fuse according to claim 45, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

118. A thermal fuse having a function of a current fuse according to claim 46, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

119. A thermal fuse having a function of a current fuse according to claim 47, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

120. A thermal fuse having a function of a current fuse according to claim 48, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

121. A thermal fuse having a function of a current fuse according to claim 49, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

122. A thermal fuse having a function of a current fuse according to claim 50, wherein a thickness from a lower face

of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

123. A thermal fuse having a function of a current fuse according to claim 51, wherein a thickness from a lower face  
5 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

124. A thermal fuse having a function of a current fuse according to claim 52, wherein a thickness from a lower face  
10 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

125. A thermal fuse having a function of a current fuse according to claim 53, wherein a thickness from a lower face  
of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

126. A thermal fuse having a function of a current fuse according to claim 54, wherein a thickness from a lower face  
15 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

127. A thermal fuse having a function of a current fuse according to claim 55, wherein a thickness from a lower face  
20 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

128. A thermal fuse having a function of a current fuse according to claim 56, wherein a thickness from a lower face  
25 of said resin base film to an upper face of said resin

cover film is 2.0 mm or smaller.

129. A thermal fuse having a function of a current fuse according to claim 57, wherein a thickness from a lower face of said resin base film to an upper face of said resin  
5 cover film is 2.0 mm or smaller.

130. A thermal fuse having a function of a current fuse according to claim 58, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

10 131. A thermal fuse having a function of a current fuse according to claim 59, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

132. A thermal fuse having a function of a current fuse according to claim 60, wherein a thickness from a lower face  
15 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

133. A thermal fuse having a function of a current fuse according to claim 61, wherein a thickness from a lower face  
20 of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

134. A thermal fuse having a function of a current fuse according to claim 62, wherein a thickness from a lower face of said resin base film to an upper face of said resin  
25 cover film is 2.0 mm or smaller.

135. A thermal fuse having a function of a current fuse according to claim 63, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

5 136. A thermal fuse having a function of a current fuse according to claim 64, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

10 137. A thermal fuse having a function of a current fuse according to claim 65, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

15 138. A thermal fuse having a function of a current fuse according to claim 66, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

20 139. A thermal fuse having a function of a current fuse according to claim 67, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

140. A thermal fuse having a function of a current fuse according to claim 68, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

25 141. A thermal fuse having a function of a current fuse ac-

cording to claim 69, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

142. A thermal fuse having a function of a current fuse according to claim 70, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

143. A thermal fuse having a function of a current fuse according to claim 71, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

144. A thermal fuse having a function of a current fuse according to claim 72, wherein a thickness from a lower face of said resin base film to an upper face of said resin cover film is 2.0 mm or smaller.

145. A thermal fuse having a function of a current fuse according to claim 1, wherein said flat lead conductors are made of nickel or an iron alloy.

146. A thermal fuse having a function of a current fuse according to claim 2, wherein said flat lead conductors are made of nickel or an iron alloy.

147. A thermal fuse having a function of a current fuse according to claim 3, wherein said flat lead conductors are made of nickel or an iron alloy.

148. A thermal fuse having a function of a current fuse ac-



cording to claim 4, wherein said flat lead conductors are made of nickel or an iron alloy.

149. A thermal fuse having a function of a current fuse according to claim 5, wherein said flat lead conductors are  
5 made of nickel or an iron alloy.

150. A thermal fuse having a function of a current fuse according to claim 6, wherein said flat lead conductors are made of nickel or an iron alloy.

151. A thermal fuse having a function of a current fuse according to claim 7, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

152. A thermal fuse having a function of a current fuse according to claim 8, wherein said flat lead conductors are made of nickel or an iron alloy.

153. A thermal fuse having a function of a current fuse according to claim 9, wherein said flat lead conductors are  
15 made of nickel or an iron alloy.

154. A thermal fuse having a function of a current fuse according to claim 10, wherein said flat lead conductors are  
20 made of nickel or an iron alloy.

155. A thermal fuse having a function of a current fuse according to claim 11, wherein said flat lead conductors are made of nickel or an iron alloy.

156. A thermal fuse having a function of a current fuse according to claim 12, wherein said flat lead conductors are  
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made of nickel or an iron alloy.

157. A thermal fuse having a function of a current fuse according to claim 13, wherein said flat lead conductors are made of nickel or an iron alloy.

5 158. A thermal fuse having a function of a current fuse according to claim 14, wherein said flat lead conductors are made of nickel or an iron alloy.

159. A thermal fuse having a function of a current fuse according to claim 15, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

160. A thermal fuse having a function of a current fuse according to claim 16, wherein said flat lead conductors are made of nickel or an iron alloy.

161. A thermal fuse having a function of a current fuse according to claim 17, wherein said flat lead conductors are  
15 made of nickel or an iron alloy.

162. A thermal fuse having a function of a current fuse according to claim 18, wherein said flat lead conductors are made of nickel or an iron alloy.

20 163. A thermal fuse having a function of a current fuse according to claim 19, wherein said flat lead conductors are made of nickel or an iron alloy.

164. A thermal fuse having a function of a current fuse according to claim 20, wherein said flat lead conductors are  
25 made of nickel or an iron alloy.

165. A thermal fuse having a function of a current fuse according to claim 21, wherein said flat lead conductors are made of nickel or an iron alloy.

5 166. A thermal fuse having a function of a current fuse according to claim 22, wherein said flat lead conductors are made of nickel or an iron alloy.

167. A thermal fuse having a function of a current fuse according to claim 23, wherein said flat lead conductors are made of nickel or an iron alloy.

10 168. A thermal fuse having a function of a current fuse according to claim 24, wherein said flat lead conductors are made of nickel or an iron alloy.

15 169. A thermal fuse having a function of a current fuse according to claim 25, wherein said flat lead conductors are made of nickel or an iron alloy.

170. A thermal fuse having a function of a current fuse according to claim 26, wherein said flat lead conductors are made of nickel or an iron alloy.

20 171. A thermal fuse having a function of a current fuse according to claim 27, wherein said flat lead conductors are made of nickel or an iron alloy.

172. A thermal fuse having a function of a current fuse according to claim 28, wherein said flat lead conductors are made of nickel or an iron alloy.

25 173. A thermal fuse having a function of a current fuse ac-

cording to claim 29, wherein said flat lead conductors are made of nickel or an iron alloy.

174. A thermal fuse having a function of a current fuse according to claim 30, wherein said flat lead conductors are  
5 made of nickel or an iron alloy.

175. A thermal fuse having a function of a current fuse according to claim 31, wherein said flat lead conductors are made of nickel or an iron alloy.

176. A thermal fuse having a function of a current fuse according to claim 32, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

177. A thermal fuse having a function of a current fuse according to claim 33, wherein said flat lead conductors are made of nickel or an iron alloy.

15 178. A thermal fuse having a function of a current fuse according to claim 34, wherein said flat lead conductors are made of nickel or an iron alloy.

179. A thermal fuse having a function of a current fuse according to claim 35, wherein said flat lead conductors are  
20 made of nickel or an iron alloy.

180. A thermal fuse having a function of a current fuse according to claim 36, wherein said flat lead conductors are made of nickel or an iron alloy.

181. A thermal fuse having a function of a current fuse according to claim 37, wherein said flat lead conductors are  
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made of nickel or an iron alloy.

182. A thermal fuse having a function of a current fuse according to claim 38, wherein said flat lead conductors are made of nickel or an iron alloy.

5 183. A thermal fuse having a function of a current fuse according to claim 39, wherein said flat lead conductors are made of nickel or an iron alloy.

184. A thermal fuse having a function of a current fuse according to claim 40, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

185. A thermal fuse having a function of a current fuse according to claim 41, wherein said flat lead conductors are made of nickel or an iron alloy.

186. A thermal fuse having a function of a current fuse according to claim 42, wherein said flat lead conductors are  
15 made of nickel or an iron alloy.

187. A thermal fuse having a function of a current fuse according to claim 43, wherein said flat lead conductors are made of nickel or an iron alloy.

20 188. A thermal fuse having a function of a current fuse according to claim 44, wherein said flat lead conductors are made of nickel or an iron alloy.

189. A thermal fuse having a function of a current fuse according to claim 45, wherein said flat lead conductors are  
25 made of nickel or an iron alloy.

190. A thermal fuse having a function of a current fuse according to claim 46, wherein said flat lead conductors are made of nickel or an iron alloy.

5 191. A thermal fuse having a function of a current fuse according to claim 47, wherein said flat lead conductors are made of nickel or an iron alloy.

192. A thermal fuse having a function of a current fuse according to claim 48, wherein said flat lead conductors are made of nickel or an iron alloy.

10 193. A thermal fuse having a function of a current fuse according to claim 49, wherein said flat lead conductors are made of nickel or an iron alloy.

15 194. A thermal fuse having a function of a current fuse according to claim 50, wherein said flat lead conductors are made of nickel or an iron alloy.

195. A thermal fuse having a function of a current fuse according to claim 51, wherein said flat lead conductors are made of nickel or an iron alloy.

20 196. A thermal fuse having a function of a current fuse according to claim 52, wherein said flat lead conductors are made of nickel or an iron alloy.

197. A thermal fuse having a function of a current fuse according to claim 53, wherein said flat lead conductors are made of nickel or an iron alloy.

25 198. A thermal fuse having a function of a current fuse ac-

cording to claim 54, wherein said flat lead conductors are made of nickel or an iron alloy.

199. A thermal fuse having a function of a current fuse according to claim 55, wherein said flat lead conductors are  
5 made of nickel or an iron alloy.

200. A thermal fuse having a function of a current fuse according to claim 56, wherein said flat lead conductors are made of nickel or an iron alloy.

201. A thermal fuse having a function of a current fuse according to claim 57, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

202. A thermal fuse having a function of a current fuse according to claim 58, wherein said flat lead conductors are made of nickel or an iron alloy.

15 203. A thermal fuse having a function of a current fuse according to claim 59, wherein said flat lead conductors are made of nickel or an iron alloy.

204. A thermal fuse having a function of a current fuse according to claim 60, wherein said flat lead conductors are  
20 made of nickel or an iron alloy.

205. A thermal fuse having a function of a current fuse according to claim 61, wherein said flat lead conductors are made of nickel or an iron alloy.

206. A thermal fuse having a function of a current fuse according to claim 62, wherein said flat lead conductors are  
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made of nickel or an iron alloy.

207. A thermal fuse having a function of a current fuse according to claim 63, wherein said flat lead conductors are made of nickel or an iron alloy.

5 208. A thermal fuse having a function of a current fuse according to claim 64, wherein said flat lead conductors are made of nickel or an iron alloy.

209. A thermal fuse having a function of a current fuse according to claim 65, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

210. A thermal fuse having a function of a current fuse according to claim 66, wherein said flat lead conductors are made of nickel or an iron alloy.

211. A thermal fuse having a function of a current fuse according to claim 67, wherein said flat lead conductors are  
15 made of nickel or an iron alloy.

212. A thermal fuse having a function of a current fuse according to claim 68, wherein said flat lead conductors are made of nickel or an iron alloy.

20 213. A thermal fuse having a function of a current fuse according to claim 69, wherein said flat lead conductors are made of nickel or an iron alloy.

214. A thermal fuse having a function of a current fuse according to claim 70, wherein said flat lead conductors are  
25 made of nickel or an iron alloy.



215. A thermal fuse having a function of a current fuse according to claim 71, wherein said flat lead conductors are made of nickel or an iron alloy.

216. A thermal fuse having a function of a current fuse according to claim 72, wherein said flat lead conductors are made of nickel or an iron alloy.

217. A thermal fuse having a function of a current fuse according to claim 73, wherein said flat lead conductors are made of nickel or an iron alloy.

218. A thermal fuse having a function of a current fuse according to claim 74, wherein said flat lead conductors are made of nickel or an iron alloy.

219. A thermal fuse having a function of a current fuse according to claim 75, wherein said flat lead conductors are made of nickel or an iron alloy.

220. A thermal fuse having a function of a current fuse according to claim 76, wherein said flat lead conductors are made of nickel or an iron alloy.

221. A thermal fuse having a function of a current fuse according to claim 77, wherein said flat lead conductors are made of nickel or an iron alloy.

222. A thermal fuse having a function of a current fuse according to claim 78, wherein said flat lead conductors are made of nickel or an iron alloy.

223. A thermal fuse having a function of a current fuse ac-

cording to claim 79, wherein said flat lead conductors are made of nickel or an iron alloy.

224. A thermal fuse having a function of a current fuse according to claim 80, wherein said flat lead conductors are  
5 made of nickel or an iron alloy.

225. A thermal fuse having a function of a current fuse according to claim 81, wherein said flat lead conductors are made of nickel or an iron alloy.

226. A thermal fuse having a function of a current fuse according to claim 82, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

227. A thermal fuse having a function of a current fuse according to claim 83, wherein said flat lead conductors are made of nickel or an iron alloy.

15 228. A thermal fuse having a function of a current fuse according to claim 84, wherein said flat lead conductors are made of nickel or an iron alloy.

229. A thermal fuse having a function of a current fuse according to claim 85, wherein said flat lead conductors are  
20 made of nickel or an iron alloy.

230. A thermal fuse having a function of a current fuse according to claim 86, wherein said flat lead conductors are made of nickel or an iron alloy.

231. A thermal fuse having a function of a current fuse according to claim 87, wherein said flat lead conductors are  
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made of nickel or an iron alloy.

232. A thermal fuse having a function of a current fuse according to claim 88, wherein said flat lead conductors are made of nickel or an iron alloy.

5 233. A thermal fuse having a function of a current fuse according to claim 89, wherein said flat lead conductors are made of nickel or an iron alloy.

234. A thermal fuse having a function of a current fuse according to claim 90, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

235. A thermal fuse having a function of a current fuse according to claim 91, wherein said flat lead conductors are made of nickel or an iron alloy.

236. A thermal fuse having a function of a current fuse according to claim 92, wherein said flat lead conductors are  
15 made of nickel or an iron alloy.

237. A thermal fuse having a function of a current fuse according to claim 93, wherein said flat lead conductors are made of nickel or an iron alloy.

20 238. A thermal fuse having a function of a current fuse according to claim 94, wherein said flat lead conductors are made of nickel or an iron alloy.

239. A thermal fuse having a function of a current fuse according to claim 95, wherein said flat lead conductors are  
25 made of nickel or an iron alloy.

240. A thermal fuse having a function of a current fuse according to claim 96, wherein said flat lead conductors are made of nickel or an iron alloy.

241. A thermal fuse having a function of a current fuse according to claim 97, wherein said flat lead conductors are made of nickel or an iron alloy.

242. A thermal fuse having a function of a current fuse according to claim 98, wherein said flat lead conductors are made of nickel or an iron alloy.

243. A thermal fuse having a function of a current fuse according to claim 99, wherein said flat lead conductors are made of nickel or an iron alloy.

244. A thermal fuse having a function of a current fuse according to claim 100, wherein said flat lead conductors are made of nickel or an iron alloy.

245. A thermal fuse having a function of a current fuse according to claim 101, wherein said flat lead conductors are made of nickel or an iron alloy.

246. A thermal fuse having a function of a current fuse according to claim 102, wherein said flat lead conductors are made of nickel or an iron alloy.

247. A thermal fuse having a function of a current fuse according to claim 103, wherein said flat lead conductors are made of nickel or an iron alloy.

248. A thermal fuse having a function of a current fuse ac-

cording to claim 104, wherein said flat lead conductors are made of nickel or an iron alloy.

249. A thermal fuse having a function of a current fuse according to claim 105, wherein said flat lead conductors are  
5 made of nickel or an iron alloy.

250. A thermal fuse having a function of a current fuse according to claim 106, wherein said flat lead conductors are made of nickel or an iron alloy.

251. A thermal fuse having a function of a current fuse according to claim 107, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

252. A thermal fuse having a function of a current fuse according to claim 108, wherein said flat lead conductors are made of nickel or an iron alloy.

15 253. A thermal fuse having a function of a current fuse according to claim 109, wherein said flat lead conductors are made of nickel or an iron alloy.

254. A thermal fuse having a function of a current fuse according to claim 110, wherein said flat lead conductors are  
20 made of nickel or an iron alloy.

255. A thermal fuse having a function of a current fuse according to claim 111, wherein said flat lead conductors are made of nickel or an iron alloy.

256. A thermal fuse having a function of a current fuse according to claim 112, wherein said flat lead conductors are  
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made of nickel or an iron alloy.

257. A thermal fuse having a function of a current fuse according to claim 113, wherein said flat lead conductors are made of nickel or an iron alloy.

5 258. A thermal fuse having a function of a current fuse according to claim 114, wherein said flat lead conductors are made of nickel or an iron alloy.

259. A thermal fuse having a function of a current fuse according to claim 115, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

260. A thermal fuse having a function of a current fuse according to claim 116, wherein said flat lead conductors are made of nickel or an iron alloy.

261. A thermal fuse having a function of a current fuse according to claim 117, wherein said flat lead conductors are  
15 made of nickel or an iron alloy.

262. A thermal fuse having a function of a current fuse according to claim 118, wherein said flat lead conductors are made of nickel or an iron alloy.

20 263. A thermal fuse having a function of a current fuse according to claim 119, wherein said flat lead conductors are made of nickel or an iron alloy.

264. A thermal fuse having a function of a current fuse according to claim 120, wherein said flat lead conductors are  
25 made of nickel or an iron alloy.

265. A thermal fuse having a function of a current fuse according to claim 121, wherein said flat lead conductors are made of nickel or an iron alloy.

266. A thermal fuse having a function of a current fuse according to claim 122, wherein said flat lead conductors are made of nickel or an iron alloy.

267. A thermal fuse having a function of a current fuse according to claim 123, wherein said flat lead conductors are made of nickel or an iron alloy.

268. A thermal fuse having a function of a current fuse according to claim 124, wherein said flat lead conductors are made of nickel or an iron alloy.

269. A thermal fuse having a function of a current fuse according to claim 125, wherein said flat lead conductors are made of nickel or an iron alloy.

270. A thermal fuse having a function of a current fuse according to claim 126, wherein said flat lead conductors are made of nickel or an iron alloy.

271. A thermal fuse having a function of a current fuse according to claim 127, wherein said flat lead conductors are made of nickel or an iron alloy.

272. A thermal fuse having a function of a current fuse according to claim 128, wherein said flat lead conductors are made of nickel or an iron alloy.

273. A thermal fuse having a function of a current fuse ac-

cording to claim 129, wherein said flat lead conductors are made of nickel or an iron alloy.

274. A thermal fuse having a function of a current fuse according to claim 130, wherein said flat lead conductors are  
5 made of nickel or an iron alloy.

275. A thermal fuse having a function of a current fuse according to claim 131, wherein said flat lead conductors are made of nickel or an iron alloy.

276. A thermal fuse having a function of a current fuse according to claim 132, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

277. A thermal fuse having a function of a current fuse according to claim 133, wherein said flat lead conductors are made of nickel or an iron alloy.

15 278. A thermal fuse having a function of a current fuse according to claim 134, wherein said flat lead conductors are made of nickel or an iron alloy.

279. A thermal fuse having a function of a current fuse according to claim 135, wherein said flat lead conductors are  
20 made of nickel or an iron alloy.

280. A thermal fuse having a function of a current fuse according to claim 136, wherein said flat lead conductors are made of nickel or an iron alloy.

281. A thermal fuse having a function of a current fuse according to claim 137, wherein said flat lead conductors are  
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made of nickel or an iron alloy.

282. A thermal fuse having a function of a current fuse according to claim 138, wherein said flat lead conductors are made of nickel or an iron alloy.

5 283. A thermal fuse having a function of a current fuse according to claim 139, wherein said flat lead conductors are made of nickel or an iron alloy.

284. A thermal fuse having a function of a current fuse according to claim 140, wherein said flat lead conductors are  
10 made of nickel or an iron alloy.

285. A thermal fuse having a function of a current fuse according to claim 141, wherein said flat lead conductors are made of nickel or an iron alloy.

286. A thermal fuse having a function of a current fuse according to claim 142, wherein said flat lead conductors are  
15 made of nickel or an iron alloy.

287. A thermal fuse having a function of a current fuse according to claim 143, wherein said flat lead conductors are made of nickel or an iron alloy.

20 288. A thermal fuse having a function of a current fuse according to claim 144, wherein said flat lead conductors are made of nickel or an iron alloy.